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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,365	02/08/2001	George G. Barclay	50533	6843

7590 02/27/2003

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Boston, MA 02109

EXAMINER

HAMILTON, CYNTHIA

ART UNIT PAPER NUMBER

1752

DATE MAILED: 02/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/778,365

Applicant(s)

BARCLAY ET AL.

Examiner

Cynthia Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12, 15 and 25-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-11, 26-28 and 35-45 is/are rejected.
- 7) ☒ Claim(s) 7, 12, 15, 25, 29, 31-36 and 38-45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 28 (second occurrence)-44 have been renumbered 29-45. Claims 13, 14 and 16-24 have been cancelled. Claim 1 has been amended. Claims 25-45 are newly added. Amended claim 1 is essentially cancelled original claim 16. All the other claims are newly presented because of this addition to claim 1. Claims 1-12, 15 and 25-45 are present for examination. Only claim 1 is identical to an originally presented claim. All other claims have been changed by amendment and contain limitations added since the last Office Action.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeda et al (US 2001/0036593 A1). The processes, photoresists and coated substrates of Takeda et al anticipate, with respect to instant claims 1-6, applicants' invention. While specific ranges of molecular weight range components excluded by the extraction steps of Takeda et al are not disclosed the molecular weights obtained along with the molecular weight dispersity achieved is indicative

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such components are removed by the steps given in the Examples of Takeda et al. In Takeda et al, see particularly [0013, 0025, 0028, 0099, 0100], and claims 3-4 wherein a polymer comprising recurring units of formula (2) and recurring units of formula (1) and  $R_2=H$  are chosen. No working examples in Takeda et al have acrylates. They have methacrylates instead. Applicants do not define acrylate in their specification, so the term is taken to mean acrylates and acrylates alone. Thus, the instant claims do not read on their own example 4 wherein a methacrylate is used to form the resin for the photoresist. The choice of acrylate or methacrylate in claims 3 and 4 is seen as so small as to be immediately envisionable and therefore anticipatory of applicants' invention.

4. Claims 1-6, 8-11, 26- 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al (US 2001/0036593 A1). With respect to instant claims 1-6, 8-11, 26-28, Takeda et al teach the instant processes with the exception of setting forth a working example wherein the chemical amplification type resist composition of their Abstract makes use of an acrylate instead of a methacrylate. However, acrylates as well as methacrylates are clearly disclosed in formula (2) as only two choices of  $R_2$ , i.e. hydrogen or methyl, are given in [0009]. The  $R_3$  is a tertiary hydrocarbon well known in the chemically amplified resist art to be acid cleavable. Thus, all choices of  $R_3$  in Takeda et al are acid cleavable. Takeda et al teach a method of treating a base resin for these types of resists wherein a narrow dispersity or polydispersity index is achieved.

5. Applicant's arguments filed December 4, 2002 have been fully considered but they are not persuasive. Applicants argue that Takeda document does not have a sufficiently early date to be prior art with respect to the present application. Applicants allege the "document can be antedated as presently applied by correction of the priority date of the application or Rule 131

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declaration. Applicants have not successfully "corrected" their priority date. The effective filing date in this application is February 8, 2001. Applicants have had four petitions dismissed with respect to this "correction". Applicants have presented no Rule 131 declarations in this application. Thus, Takeda having a 102(e) date of January 17, 2001 is still of sufficiently early date to be prior art in the present application. Applicants argue Takeda document also does not teach or suggest features of the pending claims but cites only that with respect to claims 29-44, since the examiner did not reject the original claim 10 under Takeda then there is no "washing" in Takeda. The examiner concurs that there is no washing in Takeda if washing is generally defined as set forth yourdictionary.com under 7. Chemistry, b. to pass a solvent through a precipitate. No step of washing a precipitate is found in Takeda. Polymers are precipitated out by the treatment by liquids but the precipitate is not passed through the formed precipitate to wash the precipitate in Takeda.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 37-45 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over (US 2001/0036593 A1). The photoresist composition and coated substrates of claims 37-45 are limited by "the resin obtainable washing a prepared resin with one or more organic solvents." This limit does not require "the resin" to be "a prepared resin". This limit does not even require that "the resin" be made by "washing a

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prepared resin with one or more organic solvents." The limit is that "the resin" be obtainable in that manner, i.e. that it is able to be obtained in that manner. Thus, the product is claimed not quite as a product-by-process claim. The examiner notes that if "the resin" was obtained by using any system wherein a resin of some kind had to be washed to make that system work then "the resin" was obtained within the limits set. The examiner notes that filtering "the resin" through washed columns of resin beads may met this limit. The examiner also notes that because the claims can be loosely read as product by process claims then in view of MPEP 2113

a. PRODUCT-BY-PROCESS CLAIMS ARE NOT LIMITED TO THE MANIPULATIONS OF THE RECITED STEPS, ONLY THE STRUCTURE IMPLIED BY THE STEPS,

b. ONCE A PRODUCT APPEARING TO BE SUBSTANTIALLY IDENTICAL IS FOUND AND A 35 U.S.C. 102 /103 REJECTION MADE, THE BURDEN SHIFTS TO THE APPLICANT TO SHOW AN UNOBVIOUS DIFFERENCE.

The Takeda et al resist compositions of claim 1 (Takeda et al) appear to be essentially the same as set forth by applicants in that they have phenolic and alkyl (meth) acrylate labile groups wherein a polymer comprising recurring units of (formula 1 and 2) is used in the resist and is purified to a molecular weight dispersity of 1.0 to 1.5 as set forth in claim 3 of Takeda. Both acrylates and methacrylates are claimed by Takeda. In the alternative, the resins of Takeda although made in a different manner are "obtainable" in the manner set forth in claim 37 even if they are not made that way as evidenced by the desire of both applicants and Takeda to narrow the molecular weight range of the resin used in the photoresist.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 35 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 35-36 limit the method of claim 30 (if renumbered properly within the claims) to the resin being treated with a solvent. There is no solvent treatment step in claim 30, so it is not clear from claims 35-36 when such treatment occurs. Is it at washing after washing or before washing? Step (b) refers to "the treated resin" so treatment must occur before step (b). Claims 42-43 have similar problems with "treated" steps to resins since the parent claim of 37 (applicant's 36) does not have a treatment step set forth.

3. Claims 38-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Since there are two resins set forth in claim 37 (old 36 before proper numbering), i.e. a resin after washing and a prepared resin, to which resin, "the resin" in claims 38-43 pertains is unclear.

4. Claims 7, 12, 15, 25, and 29 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 31-36 and 38-45 are objected to because of the following informalities: These claims need to be made dependent upon their renumbered status, i.e. claim 38 should be made dependent upon claim 37 instead of wrongly numbered claim 36 and claim 44 should be made dependent upon claim 44 instead of wrongly numbered claim 44 . Appropriate correction is required.



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6. Claim 30 is allowed and claims 31-34 would be allowed if the objection set forth above were removed.

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cynthia Hamilton whose telephone number is (703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on (703) 308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.*

*Any inquiry of papers not received regarding this communication or earlier communications, or of a general nature or relating to the status of this application or proceeding should be directed should be directed to the Customer Service Center of Technology Center 1700 whose telephone number is (703) 306-5665.*

Cynthia Hamilton  
February 24, 2003



CYNTHIA HAMILTON  
PRIMARY EXAMINER

CYNTHIA HAMILTON  
PRIMARY EXAMINER